

REMARKS

In the present Amendment, claim 1 has been amended to require characteristic (1) or characteristics (1) and (2). Claims 1, 2, 4, and 17 have been amended to improve their form.

Entry of the Amendment after final is appropriate and proper since Applicants are merely narrowing the expression “at least one of characteristics (1) and (2)” to a subset, namely, “characteristic (1) or characteristics (1) and (2),” and the application is now plainly in condition for allowance.

Upon entry of the Amendment, which is respectfully requested, claims 1-2, 4, 7-14, 17, and 21-22 will be pending.

On page 3 of the Office Action, claim 1 is rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Namely, Examiner asserts that there is insufficient antecedent basis for the word “the” in lines 1 and 6 of claim 6.

Applicants respectfully submit that the above amendment to claim 1 obviates this rejection. Reconsideration and withdrawal of the § 112, second paragraph, rejection are respectfully requested.

On page 4 of the Office Action, claims 1, 2, 4, and 17 are rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Fukunaga et al. (WO 02/078840, using U.S. Patent No. 7,378,368 as an English language translation) (“Fukunaga”).

In response, Applicants respectfully submit that the amendment above overcomes this rejection for at least the following reasons.

The last Office Action stated that the characteristic (1) of claim 1 need not be satisfied, because the catalyst must only meet at least one of the characteristics (1) and (2). Claim 1, as currently amended, now requires characteristic (1).

Fukunaga does not teach calcination after treating the catalyst with an aqueous oxide, as required by characteristic (1) of claim 1.

Teaching Away

Applicants respectfully submit that Fukunaga only teaches that drying is carried out, and that calcining is preferably not carried out after component (a) (ruthenium) is supported, since calcining results in oxidation, scattering and coagulation (col. 8, lines 31-38) thereof. In distinction, the present invention is characterized by calcining after alkaline treatment.

Applicants thus respectfully submit that Fukunaga **teaches against** the present invention.

Teaching Away From Combination

Applicants assume Fukunaga discloses the same aqueous alkaline solution treatment as presently claimed. However, it is carried out for removing salts (for example, chlorine when an aqueous solution of ruthenium chloride is used), while calcining is preferably not carried out after drying, as stated above. Therefore, Fukunaga does not appear to disclose drying and calcining after aqueous alkaline solution treatment, i.e., the disclosure regarding catalyst preparation in the Examples of Fukunaga includes only drying at 80°C.

Thus, Fukunaga differs from the present claims at this additional point and for this additional reason cannot render the claims herein obvious.

Calcination at 400-800°C After Aqueous Alkaline Solution Treatment Is Important

Fukunaga teaches calcining in a non-oxygen inert gas (nitrogen or argon) when calcining is carried out (for removing salts) (col. 8, lines 58-61), though calcining is preferably not carried out as stated above.

In distinction, the present invention is characterized by calcinations in the air after aqueous alkaline solution treatment as set forth in claim 1.

In fact, the Comparative Examples in the present specification confirm that satisfactory results cannot be obtained with only drying after aqueous alkaline solution treatment; calcining in the air without alkaline solution treatment; or calcining in an inert gas atmosphere after aqueous alkaline solution treatment.

In this regard, Applicants are of the opinion that treatment of a catalyst with an alkaline aqueous solution turns ruthenium into ruthenium hydroxide (for example, aqueous ammonia treatment of a catalyst of ruthenium chloride produces ruthenium hydroxide, as follows: $\text{RuCl}_3 + 3\text{NH}_4\text{OH} \rightarrow \text{Ru}(\text{OH})_3 + 3\text{NH}_4\text{Cl}$). Applicants thus assume that hydroxyl groups are also formed on the surface of a support of alumina and manganese oxide, and that the hydroxyl groups of ruthenium hydroxide and those of the support act on each other. Calcining in the air turns ruthenium hydroxide into ruthenium oxide, as is clear from XRD analysis. Applicants believe that the results of the present invention require the mutual interaction of the hydroxyl groups of the ruthenium hydroxide and support (active species) prior to calcination and the subsequent oxidation of the active species by calcination.

Therefore, they conclude that the results of the present invention cannot be obtained from calcination of a catalyst prior to treatment with an aqueous alkaline solution, since there is no mutual interaction of hydroxyl groups, and that the results of the present invention cannot be obtained using a dry or inert gas atmosphere, since no oxidation of active species occurs.

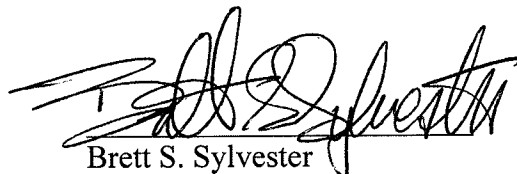
Moreover, Applicants respectfully submit that one of ordinary skill in the art would not have been motivated to increase the drying temperature of Fukunaga to carry out calcination in the air after aqueous alkaline solution treatment, because one of ordinary skill in the art would accept the fact that drying is not the same as calcining, i.e., these are two separate and distinct well-accepted different procedures in the art, and more than a mere difference in temperature is involved.

In view of the above amendment and argument, reconsideration and withdrawal of the § 103 rejection based on Fukunaga are requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Brett S. Sylvester
Registration No. 32,765

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON DC SUGHRUE/265550

65565

CUSTOMER NUMBER

Date: June 8, 2009